

## CLAIMS

What is claimed is:

- Sub  
a1
- 09737384.12400
- 1 1. A method, comprising:
    - 2 associating a first route with a first channel of two or more channels in a
    - 3 first dense wavelength division multiplex (DWDM) link;
    - 4 associating a second route with a second channel of the two or more
    - 5 channels in the first dense wavelength division multiplex (DWDM)
    - 6 link;
    - 7 associating a third route with a third channel of two or more channels in a
    - 8 second dense wavelength division multiplex (DWDM) link, the first
    - 9 route, the second route and the third route providing similar
    - 10 connections, the first DWDM link being different from the second
    - 11 DWDM link; and
    - 12 selecting the third route instead of the second route as a diverse alternate
    - 13 route
  - 1 2. The method of claim 1, wherein the first DWDM link is associated with a
  - 2 first physical link identifier and wherein the second DWDM link is
  - 3 associated with a second physical link identifier.
  - 1 3. The method of claim 2, wherein selecting the third route comprises
  - 2 comparing the first physical link identifier with the second physical link
  - 3 identifier.

1 4. A method of preselecting a diverse alternate route when using dense  
2 wavelength division multiplex (DWDM), comprising:  
3 assigning a first physical link identifier to a first route, the first route using  
4 a channel in a first DWDM fiber link;  
5 assigning a second physical link identifier to a second route, the second  
6 route using a channel in a second DWDM fiber link, wherein the  
7 second route and the first route have no common route segment; and  
8 comparing the first physical link identifier with the second physical link  
9 identifier to select a diverse alternate route for the first route, wherein  
10 when the first physical link identifier is different from the second  
11 physical link identifier, the second route is selected as the diverse  
12 alternate route.

1 5. The method of claim 4, wherein the first route and the diverse alternate  
2 route provide connections to similar nodes.

1 6. The method of claim 4, wherein the first physical link identifier and the  
2 second physical link identifier are implemented with a routing protocol.

1 7. The method of claim 6, wherein the routing protocol is private network-to-  
2 network interface (PNNI) protocol.

1 8. The method of claim 7, wherein the first physical link identifier is  
2 implemented in a system capabilities information group.

- 1 9. The method of claim 7, wherein the first physical link identifier is  
2 implemented in a horizontal link information group.
- 1 10. A computer readable medium having stored thereon sequences of  
2 instructions which are executable by a digital processing system, and  
3 which, when executed by the digital processing system, cause the system to  
4 perform a method for preselecting a diverse alternate route when using  
5 dense wavelength division multiplex (DWDM), comprising:  
6 assigning a first physical link identifier to a first route, the first route using  
7 a channel in a first DWDM fiber link;  
8 assigning a second physical link identifier to a second route, the second  
9 route using a channel in a second DWDM fiber link, wherein the  
10 second route and the first route have no common route segment; and  
11 comparing the first physical link identifier with the second physical link  
12 identifier to select a diverse alternate route for the first route, wherein  
13 when the first physical link identifier is different from the second  
14 physical link identifier, the second route is selected as the diverse  
15 alternate route.
- 1 11. The computer readable medium of claim 10, wherein the first route and the  
2 diverse alternate route provide connections to similar nodes.
- 1 12. The computer readable medium of claim 10, wherein the first physical link  
2 identifier and the second physical link identifier are implemented with a  
3 routing protocol.

- 1 13. The computer readable medium of claim 12, wherein the routing protocol  
2 is private network-to-network interface (PNNI) protocol.
- 1 14. The computer readable medium of claim 13, wherein the first physical link  
2 identifier is implemented in a system capabilities information group.
- 1 15. The computer readable medium of claim 13, wherein the first physical link  
2 identifier is implemented in a horizontal link information group.
- 1 16. A method, comprising:  
2 associating a first route with a first channel of two or more channels in a  
3 first physical link;  
4 associating a second route with a second channel of two or more channels  
5 in the second physical link, the first route and the second route  
6 providing connections to similar nodes; and  
7 selecting the second route as a diverse alternate route for the first route.
- 1 17. The method of claim 16, wherein selecting the second route as the diverse  
2 alternate route comprises comparing the first physical link with the second  
3 physical link and selecting the second route when the first physical link is  
4 different from the second physical link.

00427284-18E2E260

1 18. The method of claim 17, wherein comparing the physical link with the  
2 second physical link comprises associating the first physical link with a  
3 first physical link identifier and associating the second physical link with a  
4 second physical link identifier.

1 19. The method of claim 16, wherein the second route is selected as the diverse  
2 alternate route for the first route before the first route fails.

1 20. A computer system, comprising:

2 a bus;

3 a data storage device coupled to the bus; and

4 a processor coupled to the data storage device, the processor operable

5 to receive instructions which, when executed by the processor,

6 cause the processor to perform a method comprising:

7 associating a first route with a first channel of two or more

8 channels in a first physical link;

9 associating a second route with a second channel of two or more

10 channels in the second physical link, the first route and the

11 second route providing connections to similar nodes; and

12 selecting the second route as a diverse alternate route for the first

13 route.

1 21. The system of claim 20, wherein selecting the second route as the diverse  
2 alternate route comprises comparing the first physical link with the second

3 physical link and selecting the second route when the first physical link is  
4 different from the second physical link.

1 22. The system of claim 21, wherein comparing the first physical link with the  
2 second physical link comprises associating the first physical link with a  
3 first physical link identifier and associating the second physical link with a  
4 second physical link identifier.

1 23. The system of claim 20, wherein the second route is selected as the diverse  
2 alternate route for the first route before the first route fails.

1 24. A computer system, comprising:  
2 means for associating a first route with a first channel of two or more  
3 channels in a first physical link;  
4 means for associating a second route with a second channel of two or more  
5 channels in the second physical link, the first route and the  
6 second route providing connections to similar nodes; and  
7 means for selecting the second route as a diverse alternate route for the first  
8 route.

1 25. The system of claim 24, wherein means for selecting the second route as the  
2 diverse alternate route comprises means for comparing the first physical  
3 link with the second physical link and means for selecting the second route  
4 when the first physical link is different from the second physical link.

1 26. The system of claim 25, wherein means for comparing the first physical link  
2 with the second physical link comprises means for associating the first  
3 physical link with a first physical link identifier and means for associating  
4 the second physical link with a second physical link identifier.

1 27. The system of claim 24, wherein the second route is selected as the diverse  
2 alternate route for the first route before the first route fails.

09737384-121400